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1: Osaka Daigaku Shigaku Zasshi 1990 Jun;35
(1):93-109

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[Detection of mutans streptococci by latex agglutination test and its application as a caries-activity test]

[Article in Japanese]

Takei T.

Department of Pedodontics, Osaka University Faculty of Dentistry, Japan.

The number of mutans streptococci in saliva and dental plaque has been reported to correlate with the incidence of dental caries. This report describes a simple and rapid diagnostic method for the detection of mutans streptococci in dental plaque using latex agglutination (LA) test. Latex particles (0.876 microns, diameter) were sensitized with partially purified antibodies against whole cells of *Streptococcus mutans* MT8148 (c), MT703R (e) and OMZ175 (f) and *Streptococcus sobrinus* B13 (d) and 6715 (g). Whole cells of mutans streptococci or dental plaque was extracted with a mixture of 8M sodium nitrite (5 microliters) and 2M acetic acid (5 microliters) for five minutes and neutralized with 2M sodium hydroxide (10 microliters), and the extract and the sensitized latex suspension (20 microliters) were mixed and the grade of agglutination reaction was read macroscopically after ten minutes standing at room temperature. The LA tests could detect 1.0 10ng of purified serotype antigen and 10(5)-10(6) CFU of live cells of mutans streptococci and specifically distinguish not only the mutans streptococci from the other streptococci but also *S. mutans* from *S. sobrinus*. However, cross-reactions were still observed among the serotypes c, e and f of *S. mutans* or between the serotypes d and g of *S. sobrinus*. Plaque samples were collected from 168 children (2 to 12 years of age) and the 0.1 mg (wet weight) were applied to the LA tests. At the same time, the total number of mutans streptococci in plaque and the serotypes of each isolate were determined. The results of LA reaction correlated significantly with the number of mutans streptococci in plaque (chi-square analysis; p less than 0.0001). The LA tests discriminated between *S. mutans* and *S. sobrinus* in dental plaque. It was found that the latex particles sensitized with anti-serotype c and/or e *S. mutans* antibodies were most effective in demonstrating mutans streptococci, and they were used in the following studies. The results of LA reaction correlated significantly with both the number of decayed tooth surfaces and the number of decayed and filled tooth surfaces. These results suggest that the LA

test in mutans streptococci can be useful for the detection of mutans streptococci in dental plaque and also as a caries-activity test at dental clinics.

PMID: 2135419 [PubMed - indexed for MEDLINE]

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